

EXHIBIT 12

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF NORTH CAROLINA
Durham Division**

**THOMAS H. KRAKAUER,
on behalf of a class of persons,**

Plaintiff,

v.

No. 14-cv-33

DISH NETWORK, L.L.C.,

Defendant.

EXPERT REPORT OF DR. DEBRA J. ARON

I. QUALIFICATIONS AND ASSIGNMENT

1. My name is Debra J. Aron. I am a Principal and Managing Director at Navigant Economics and an Adjunct Associate Professor at Northwestern University. Navigant Economics is an economics and finance consulting firm that provides economic expertise for litigation, regulatory proceedings, policy debates, and business strategy. My business address is 1603 Orrington Avenue, Suite 1500, Evanston, IL, 60201.
2. I received a Ph.D. in economics from the University of Chicago in 1985, where my honors included a Milton Friedman Fund fellowship, a Pew Foundation teaching fellowship, and a Center for the Study of the Economy and the State dissertation fellowship. I was an Assistant Professor of Managerial Economics and Decision Sciences from 1985 to 1992, at the J. L. Kellogg Graduate School of Management, Northwestern University, and a Visiting Assistant Professor of Managerial Economics and Decision Sciences at the Kellogg School from 1993-1995. I was named a National Fellow of the Hoover Institution, a think tank at Stanford University, for the academic year 1992-1993, where I studied innovation and product proliferation in multiproduct firms. Concurrent with my position at Northwestern University, I also held the position of Faculty Research Fellow with the National Bureau of Economic Research from 1987-1990. At the Kellogg School, I have taught M.B.A. and Ph.D. courses in managerial economics, information economics, and the economics and strategy of pricing. I currently teach a Master's course on competition and strategy in communications markets at Northwestern University. I am a member of the American Economic Association and the Econometric Society, and an Associate member of the American Bar Association.
3. In the past 20 years a significant portion of my consulting and academic work has focused on telecommunications issues, the economics of regulation, innovation, incentives, and pricing, and I have published articles on these subjects in several peer-reviewed scholarly journals, including the American Economic Review, the RAND Journal of Economics, the Journal of Law, Economics, and Organization, the Review of Network Economics, and the Journal of Competition Law and Economics. I have provided economic consulting services on numerous occasions to firms in the

communications industry, on competition, costing, pricing, incentives, and regulation issues in the United States and internationally. I have testified in federal cases as well as in state courts of law and before regulatory agencies and state legislatures regarding a variety of economic issues in the telecommunications industry, including the regulatory and competitive history, development, and trends in the communications marketplace; economic and antitrust principles of competition in industries undergoing deregulation; measurement of competition in communications markets; and the social welfare and policy implications of regulatory rules and changes in the telecommunications industry, including consumer protection rules. I have testified on damages and irreparable harm, and I have testified in several contract disputes between communications companies including on issues related to wireless handset and services prices, price bundles, costs, technologies, and strategy. My experience includes class action matters (including class certification) in telecommunications markets. I have provided consulting analysis and advice on wireless telecommunications services pricing. Throughout the course of my career I have analyzed public and proprietary and confidential telecommunications data, both as part of my work in litigation and regulatory matters, and in non-litigation consulting and research.

4. I have provided data analysis and consulting support in a number of matters brought under the TCPA. In addition, I testified at deposition in the *Balschmitter v. TD Auto Finance LLC*¹, *Birchmeier et al v. Caribbean Cruise Line, Inc. et al*², and *Warnick v. DISH Network, LLC*³ TCPA cases; I testified in the latter case in court as well.
5. My professional qualifications are detailed in my curriculum vitae, which is attached as Exhibit 1.
6. Navigant Economics bills for my time on this engagement at my usual and customary rate of \$760 per hour, for the time of the Navigant Economics staff that have assisted me

¹ *Amanda Balschmitter et al., v. TD Auto Finance, LLC*, United States District Court Eastern District of Wisconsin, Case No. 2:13-cv-1186.

² *Grant Birchmeier et al. v. Caribbean Cruise Line, Inc., et al.*, In the United States District Court for the Northern District of Illinois, Eastern Division, Case No. 1:12-cv-04069.

³ *Seth Warnick v. DISH Network L.L.C.*, Before the United States District Court for the District of Colorado, Civil Action No. 12-cv-1952-WYD-MEH.

in preparing my declaration at their usual and customary rates, and for any expenses incurred in the preparation of this report.

7. I was asked by Counsel for Defendant to analyze the expert report of Ms. Anya Verkhovskaya on behalf of Plaintiff to determine whether she has offered a reliable methodology for ascertaining Plaintiff's proposed class.⁴ Ms. Verkhovskaya produced a report in this case dated January 30, 2015. She subsequently produced corrected pages to report, dated March 5, 2015. Her corrections affected some of her opinions in this case. Her report corrections were provided seven days before the due date of my report. In addition, Ms. Verkhovskaya's deposition was taken on March 6, 2015. At her deposition Ms. Verkhovskaya was not able to answer certain questions that are potentially material to my analysis. Although Ms. Verkhovskaya testified that she would follow up on certain requested information, I have not obtained that information at the time of submitting this report. Hence, I reserve the right to modify or augment my opinions if additional information becomes available.
8. A list of the documents I considered in my analysis is contained in Exhibit 2.

II. PLAINTIFF'S PROPOSED CLASSES

9. I understand that this case is brought by the Plaintiff Dr. Thomas Krakauer under Section 227(c)(5) of the Telecommunications Consumer Protection Act.⁵ In Plaintiff's Amended Class Action Complaint, Plaintiff tentatively defines two purported classes. Count I Class is defined as:

All persons throughout the United States whose telephone numbers were listed on the Do Not Call Registry, and to whom, at any time within the applicable limitations period, more than one call within any twelve-month period was placed by or at the direction of Satellite Systems Network, to promote the sale of Dish satellite television subscriptions.⁶

10. Count II Class is defined as:

⁴ Expert Report of Anya Verkhovskaya, A.B. Data, Ltd., *Thomas H. Krakauer v. DISH Network L.L.C.*, In the United States District Court for the Middle District of North Carolina, Durham Division, No. 14-cv-333, January 30, 2015, as corrected on March 5, 2015 (hereafter, *Verkhovskaya Corrected Report*).

⁵ First Amended Class Action Complaint, *Thomas H. Krakauer v. DISH Network L.L.C.*, In the United States District Court for the Middle District of North Carolina, Durham Division, No. 14-cv-333, December 1, 2014 (hereafter, *Amended Complaint*), ¶ 16.

⁶ *Amended Complaint*, ¶ 42.

All persons throughout the United States whose telephone numbers were listed on either the Defendant's or SSN's company-specific Do Not Call registries, but who received telemarketing calls by or at the direction of Satellite Systems Network, to promote the sale of Dish satellite television subscriptions.⁷

11. According to Plaintiff's complaint, these classes can be identified "through telephone records and databases used in transmitting the telemarketing calls."⁸

III. SUMMARY OF MS. VERKHOVSKAYA'S ANALYSIS

12. I understand that telephone calls were allegedly placed by a company called Satellite Systems Network (SSN), using a software platform provided by a company called "Five9," for the alleged purpose of promoting the sale of DISH's satellite television services.⁹
13. A set of data purported to be the dialer records of Five9 for the calls placed by SSN between May 2010 and August 2011 to promote the sale of DISH's satellite services (the "Five9 Records" or "dialer data") was produced by Five9 in this case.¹⁰ In her expert report, Ms. Verkhovskaya describes the analyses she performed on these call records.¹¹ After eliminating from this database the "unconnected" calls,¹² Ms. Verkhovskaya used

⁷ Amended Complaint, ¶ 44.

⁸ Amended Complaint, ¶ 46.

⁹ Amended Complaint, ¶ 26.

¹⁰ Files CONFIDENTIAL - SatelliteSystemsNetwork2010-20100501-20100531.xlsx; CONFIDENTIAL - SatelliteSystemsNetwork2010-20100601-20100630.xlsx; CONFIDENTIAL - SatelliteSystemsNetwork2010-20100701-20100731.csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20100801-20100831.xlsx; CONFIDENTIAL - SatelliteSystemsNetwork2010-20100901-20100930.csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20101001-20101031.csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20101101-20101130.csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20101201-20101231.csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20110101-20110131.csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20110201-20110228 (2).csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20110201-20110228.csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20110401-20110430.csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20110501-20110531.csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20110601-20110630.csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20110701-20110731.csv; CONFIDENTIAL - SatelliteSystemsNetwork2010-20110801-20110831.csv.

¹¹ Ms. Verkhovskaya compiled the Five9 Records into a single database referred to as the "Analysis Database." *Verkhovskaya Corrected Report*, pp. 7-8. Ms. Verkhovskaya testified in deposition that she never talked to anyone from SSN; that she is relying on what plaintiff's counsel told her as to whether the calls were telemarketing calls selling DISH services; and that she does not know who produced the SSN files. See Deposition of Anya Verkhovskaya, March 6, 2015 (hereafter, *Verkhovskaya Deposition*), pp. 54, 56, 57.

¹² Ms. Verkhovskaya defines unconnected calls as calls with a duration of 00:00:00; inbound calls; calls where the disposition code appeared as blank; and calls with the following disposition codes: "[Deleted];" "Abandon;"

the records for the “connected” calls to purportedly identify the following categories of persons:

1. Persons who received more than one call within a twelve-month period, whose telephone number was on the National Do Not Call Registry (“NDNCR”) at least 30 days prior to the first call, and whose telephone number was not the number of a business user or of a DISH customer.¹³
2. Persons who received more than one call within a twelve-month period, had notified DISH that they did not want to receive telemarketing calls at least 30 days prior to the first call, and whose telephone number was not the number of a business user or of a DISH customer.¹⁴
3. Persons who had notified SSN that they did not want to receive telemarketing calls, received at least two calls within a twelve month period after notifying SSN that they did not want to receive telemarketing calls, the first of which was at least 30 days after the call in which they notified SSN that they did not want to receive telemarketing calls, and whose telephone number was not the number of a business user or of a DISH customer.¹⁵

14. I refer to the list of individuals identified in the first category as the “NDNCR List.” I refer to the list of individuals identified in categories 2 and 3, together, as the “Internal DNC Lists.”
15. Ms. Verkhovskaya first identifies the unique telephone numbers that meet the criteria to be in one of these three lists, and then describes a method by which to use the information available in the Five9 Records and other sources purportedly to identify the names and addresses associated with these telephone numbers.¹⁶

A. Identification of Telephone Numbers in the NDNCR List

16. Ms. Verkhovskaya created the NDNCR List of telephone numbers following the steps summarized in Exhibit 3.

“Busy;” “Fax;” “Fax machine;” “Internal Call;” “No Answer;” “No Disposition;” and “Operator Intercept.” See, *Verkhovskaya Corrected Report*, p. 8. Ms. Verkhovskaya testified in deposition that she did not verify if numbers identified as fax numbers were fax numbers. She also does not know if “No Answer” includes calls answered by an answering machine. See *Verkhovskaya Deposition*, pp. 83-85.

¹³ *Verkhovskaya Corrected Report*, pp. 9-11.

¹⁴ *Verkhovskaya Corrected Report*, pp. 11-14.

¹⁵ *Verkhovskaya Corrected Report*, pp. 11-14.

¹⁶ *Verkhovskaya Corrected Report*, pp. 11, 12-3, 14-15.

B. Identification of Telephone Numbers in the Internal DNC Lists

17. To generate the list of telephone numbers in the Internal DNC Lists, Ms. Verkhovskaya used a similar methodology as the one described in Exhibit 3, but using internal do-not-call lists allegedly created by DISH and data from the Five9 Records, instead of the NDNCR, in the second step of the process. The steps taken are summarized in Exhibits 4 and 5.
18. Ms. Verkhovskaya does not purport to have ascertained the class or classes proposed in this case using the methodology she has described, nor to have proposed a methodology for doing so. She testified at deposition that she was retained only to perform analysis of telephone data using the criteria given to her by Plaintiff's counsel.¹⁷ Nevertheless, because I understand that it is Plaintiff's duty to provide a reliable methodology for ascertaining the classes proposed, and because the only analysis that might be related to ascertaining a class that has been presented by Plaintiff is the data analysis contained in Ms. Verkhovskaya's report, I will give Plaintiff the benefit of the doubt by assuming that the data steps taken by Ms. Verkhovskaya are Plaintiff's proposed methodology for ascertaining the classes he is proposing.
19. To the best of my understanding, Ms. Verkhovskaya's analysis is that the 20,450 telephone numbers in her NDNCR List (see my Exhibit 3) are the telephone numbers of the members of the Count I class; and the 7,117 telephone numbers that Ms. Verkhovskaya concludes were at the time of the call on DISH's internal DNC list, along with the 714 telephone numbers that Ms. Verkhovskaya concludes were on SSN's DNC list—together, the Internal DNC Lists—are the telephone numbers of the members of the Count II class. I will refer to the 20,450 telephone numbers identified in Exhibit 3 as the

¹⁷ *Verkhovskaya Deposition*, pp. 7:9-12, 8:8-9:5, 11:1-9. When asked what work she did on this case, she testified that she was retained to "perform data analysis," and that her area of expertise is "analyzing telephone data based on the criteria that [were] given to [her] by plaintiff's counsel." In redirect examination, Ms. Verkhovskaya stated that she was retained to perform "pre-class certification services." (*Verkhovskaya Deposition*, p. 159:11-13) She defines these services as "a set of services from document review to conversion of paper documents into electronic files for presentment and analysis of those files, data processing, issuing various opinions about potential impact of notice should the class be certified and potential ways to notice the class." (*Verkhovskaya Deposition*, p. 161:6-14)

“purported Class I numbers” and the 7,117 and 714 numbers identified in Exhibit 4 and Exhibit 5 as the “purported Class II numbers.”¹⁸

C. Identification of Names and Addresses Associated with Telephone Numbers in the NDNCr List and the Internal DNC Lists

20. Ascertaining a class in this case requires, among other steps, identifying the individuals who subscribed to the telephone numbers to which the allegedly illegal calls were made. Ms. Verkhovskaya does not provide a list that she purports identifies the names of the purported class members. Rather, she describes steps that she asserts could identify the names and addresses of the individuals associated with the identified telephone number lists.
21. Specifically, where available, Ms. Verkhovskaya proposes to use the name and address fields in the Five9 Records to identify the names and addresses of the individuals associated with the telephone numbers in the NDNCr List and the Internal DNC Lists.¹⁹ The name and/or address field is blank, however, in many records. For the telephone numbers for which the name of the individual associated with the number is missing in the Five9 Records, Ms. Verkhovskaya references a file that she obtained from data vendor LexisNexis. This file, according to her, “includes, among other information, information regarding the name(s) and address(es) relevant to the subscribers of the telephone number for a given timeframe.”²⁰ My understanding is that her proposal is to use the names in the LexisNexis data for telephone numbers for which the name is missing in the Five9 Records.

IV. CRITIQUE OF MS. VERKHOVSKAYA’S ANALYSIS

22. I have studied Ms. Verkhovskaya’s report, data and other files produced in discovery, and her deposition testimony, and conclude that Ms. Verkhovskaya does not provide a

¹⁸ There are not $7,114 + 714 = 7,831$ unique Class II numbers because, according to my review of the data, Ms. Verkhovskaya did not remove duplicates between those two sets of numbers.

¹⁹ *Verkhovskaya Corrected Report*, pp. 11, 12-13, 14.

²⁰ *Verkhovskaya Corrected Report*, p. 14. Ms. Verkhovskaya states that prior to notifying class members, A.B. Data would update individuals’ address information using databases from other data vendors, such as the United States Postal Service’s National Change of Address database and Experian’s MetroNet® service, and “would coordinate with additional Data Processors, such as Experian,” to “further [supplement]” name and address information “that has not yet been identified.”

complete or implementable methodology for ascertaining the classes proposed by Plaintiff. In this section I point out several deficiencies in the methodology described by Ms. Verkhovskaya for purposes of ascertaining a class.

A. Ms. Verkhovskaya does not specify a method to differentiate wireless and wireline numbers.

23. I understand from Mr. Krakauer's deposition testimony that he received the calls at issue in this case only on his residential telephone.²¹ If commonality and/or typicality of the class requires that the class members be confined to individual who also received telephone calls only on wireline residential telephones, Ms. Verkhovskaya's methodology does not include any steps to identify telephone numbers that were wireless at the time the calls to that number were made.
24. There are likely to be a material number of telephone numbers among the purported Class I numbers and purported Class II numbers that were wireless at the time of the calls at issue. According to the data provided to Ms. Verkhovskaya by data vendor Nexxa, 5,620 of the telephone numbers that were called twice or more in a period of 12 months appear to have been identified in the NDNCR output file produced by Nexxa as wireless numbers at the time of its analysis in January 2015.²²
25. The fact that a telephone number was wireless in January 2015—assuming the output file produced by Nexxa is correct—does not mean that it was wireless at the time that the calls at issue were made to that number, however; and a telephone number being wireline now does not mean it was wireline at the time of the calls to that number. Telephone numbers that were originally assigned to wireline carriers are frequently “ported” (i.e., reassigned) to a wireless carrier if the customer chooses to drop her wireline service but keep her number for a wireless phone. For example, the subscriber to a telephone number that was assigned to a wireline telephone in 2010 may have chosen to drop her

²¹ Deposition of Thomas H. Krakauer, October 14, 2014, pp. 30-33, 39.

²² File “ABDate_Ref 52272 DNC_2015016 OUTPUT.xlsx.” Ms. Verkhovskaya testified that she did not use this identifier (*Verkhovskaya Deposition*, pp. 152:22-154-1); I conclude that it purports to identify telephone numbers that were wireless at the time of the data pull on the basis of the data descriptors. See document “Nexxa DNC Scrub Status Description.docx.” I also understand that any telephone number, whether wireline or wireless, that Nexxa identified as being on the NDNCR would not be identified as wireless in its output file. Hence, any wireless telephone numbers that were identified as being on the NDNCR would not be among the 5,620 telephone numbers identified by Nexxa as wireless.

wireline service in 2011 and keep her phone number for her cell phone, and the telephone number would appear in 2011 as a wireless number. Telephone numbers can also be ported from wireless to wireline carriers. In addition, a wireline number that was at one time ported to a wireless phone would revert to the wireline carrier if the wireless customer dropped the number entirely.²³

26. Determining that a telephone number is properly included in the class therefore requires a reliable methodology for identifying for each call whether the telephone number called was wireless on the date of the call. Ms. Verkhovskaya has not proposed any methodology for doing so.

B. Several steps in Ms. Verkhovskaya's methodology are unjustified or undocumented

27. In the Five9 Records, each call is associated with a "disposition code," which Ms. Verkhovskaya used at several steps in her process to filter out subsets of the data (see steps 3, 4, and 5 in Exhibit 3, steps 3 and 4 in Exhibit 4, and steps 2, 3, and 4 in Exhibit 5). Ms. Verkhovskaya does not have information about how those disposition codes were created or entered in the data.²⁴ Her analysis is based only on instructions from Plaintiff's counsel as to how to interpret the disposition codes and she conducted no analysis to determine whether Plaintiff's counsel's instructions were correct.²⁵
28. One of the disposition codes is "DISH customer." Ms. Verkhovskaya eliminates all telephone numbers in which the disposition code for any call to that number is given as "DISH customer." The purpose of this step was apparently to eliminate DISH customers from the list.²⁶
29. Ms. Verkhovskaya provides no basis for concluding that the DISH customer disposition code would provide a reliable method for identifying DISH customers, however, and there are several reasons for concluding that relying on this code would lead to both

²³ Craig Stroup and John Vu, "Numbering Resource Utilization in the United States: NRUF Data as of June 30, 2010, Porting and Toll-Free Data as of September 30, 2010," Federal Communications Commission, April 2013, pp.2-3,5, 8.

²⁴ See, e.g., *Verkhovskaya Deposition*, pp. 56, 123-124.

²⁵ See, e.g., *Verkhovskaya Deposition*, pp. 76:6-10, 128:14-129:23.

²⁶ *Verkhovskaya Report*, p. 10. Ms. Verkhovskaya testified in her deposition that identifying these entries amounts to identifying people with an existing business relationship with DISH. *Verkhovskaya Deposition*, p. 40:7-15, 147:13-20.

errors of inclusion and errors of exclusion. The means by which the “DISH customer” disposition code that appears in the data was determined, and by whom is not known.²⁷ One possibility is that if the calling agent reached someone on the other end of the line, and the person answering the phone told the agent that she is a DISH customer, the agent entered that information in the disposition code as “DISH customer.”

30. In that case, the disposition code would not represent a verified determination of which customers were in fact DISH customers at the time of the call. Many actual DISH customers may have answered the telephone and quickly or ultimately hung up the phone without telling the agent that he is a DISH customer. This would result in errors of inclusion in Ms. Verkhovskaya’s methodology. Ms. Verkhovskaya’s methodology would not exclude any DISH customers that did not identify themselves as such to the calling agent, and those customers would therefore be erroneously included in the class. In addition, many non-DISH customers may have told the agent that they are DISH customers to get the agent off the phone, or simply by mistake. In those cases, Ms. Verkhovskaya’s methodology would result in errors of exclusion, because every called party who was not a DISH customer but who told the agent that he was a DISH customer would be excluded from the class erroneously. Ms. Verkhovskaya admitted in deposition testimony that it is not possible to know from the data whether all phone numbers that were DISH customer numbers were captured with the disposition code.²⁸
31. Moreover, Ms. Verkhovskaya’s methodology does not permit the possibility that a telephone number belonged to a DISH customer at the time of some of the calls-in-suit to that number but not at the time of others. There are at least two possibilities for how a called number could be a DISH customer for some calls and not for others. First, the telephone number may change hands, belonging to two or more different people during the period of the data, only one of which was a DISH customer. Second, the telephone number may have belonged to the same person during the relevant time period, but the person may have added or dropped DISH service during the relevant time period, so that she was a DISH customer during one or more calls, but not during other(s).

²⁷ *Verkhovskaya Deposition*, pp. 123-124. Ms. Verkhovskaya also testified that her only knowledge of the meaning of the disposition codes comes from her conversations with Plaintiff’s counsel. *Verkhovskaya Deposition*, pp. 81-82.

²⁸ *Verkhovskaya Deposition*, p. 124:11-25.

32. Ms. Verkhovskaya eliminates a telephone number if it was identified in the disposition code as a DISH customer for any call made to it. An inspection of the records that Ms. Verkhovskaya eliminated illustrates some of the errors that can result from this simplistic approach. Exhibit 6 shows some examples of telephone numbers that were dialed more than once in a 12-month period, and for which the disposition code “Dish Customer” appears at least once associated with the number. All of these numbers have been excluded from Ms. Verkhovskaya’s lists in exhibits A, B, and C of her Expert Report. In Example 1 of Exhibit 6, the number was called three times, and it was identified as a purported “DISH customer” in the third call. It is not possible to discern from the data if the person called was a DISH customer before the third call. If the person called was not a DISH customer at the time of the first and second calls, Ms. Verkhovskaya has articulated no theory (nor does Plaintiff’s amended complaint) under which the first two calls would be exempt from TCPA liability or that the called party of those calls should be excluded from the class. She has also offered no methodology for determining whether the called party was a DISH customer at the time of each call, nor for determining whether the phone number belonged to the same person at the time of each call.
33. Example 2 shows a telephone number that was called four times within a one-month period before being identified as a DISH customer. It is impossible to determine if the person called was a DISH customer before the fifth call. Moreover, as the exhibit shows, the called party appears to have identified himself (or herself) as “Cable” a month earlier. If the called party identified himself as a cable customer in July, but as a DISH customer in August, it is possible that the customer was mistaken in one or the other call, or misrepresented himself as a DISH customer in August to end the call, or that the customer dropped cable and subscribed to DISH in between the calls, or several other scenarios. The next call after the number was identified as a DISH customer was four months later; Ms. Verkhovskaya provides no means of determining if the called party was still a customer at that time. Examples 3 and 4 show similar situations in which it is unclear how to interpret the “Dish Customer” disposition code.

C. Ms. Verkhovskaya does not provide a complete methodology to identify the names and addresses associated with the relevant telephone numbers

34. Ms. Verkhovskaya does not explain why she believes that the names in the Five9 records are reliable for purposes of identifying the subscribers to the telephone numbers that were dialed. I am aware of no information about the source used in the Five9 records to obtain the names listed in the dialer database with the telephone numbers, nor its reliability.²⁹ In addition, there is no indication in the data and I am aware of no information as to whether the name in the data purports to be, for example, the subscriber to the telephone number account, the person SSN was trying to contact, or the person who picked up the phone. I am advised by counsel that in this matter the proper class member is the subscriber to the telephone number account. Ms. Verkhovskaya does not provide any evidence that the names associated with the telephone numbers in the Five9 Records are in fact the subscribers to the telephone numbers, and she testified in her deposition that the data do not provide information about this.³⁰
35. The name and address information in the Five9 Records are not complete. Of the 337,206 telephone numbers in the complete list of calls (the “Analysis Database”), 26,102 have the last name missing for every call record associated with that telephone number; 94 have the first name missing for every call record associated with that telephone number; and 14,101 are missing first and last names for every call record associated with that telephone number. In addition, the first or last name is missing for some of the call records in 68 numbers; and the first *and* last name are missing for some of the call records in 45,979 telephone numbers. These results are summarized in Exhibit 7.
36. Ms. Verkhovskaya proposes to use names and addresses provided to her by LexisNexis for the telephone numbers for which the identifying information is missing in the Five9 Records data. It is unclear whether these data were produced to Defendant, however. Ms. Verkhovskaya testified in deposition that A.B. Data submitted the phone numbers with

²⁹ Ms. Verkhovskaya testified that she does not know how SSN obtained the numbers in the Five9 database. She also testified that she does not know from the call logs in the database whether the name of the person associated with a given phone number was the actual subscriber to that number at the time of the call, *Verkhovskaya Deposition*, pp. 145:5-13, 147:5-12.

³⁰ *Verkhovskaya Deposition*, p. 145:5-13.

missing name and address information to LexisNexis and requested LexisNexis to “reverse append historic information of who was the subscriber of that phone number and what the address of that individual was during the timeframe in question.”³¹ Ms. Verkhovskaya did not provide in discovery the results of any reverse append data pull from LexisNexis that appears to have been the result of a submission by A.B. Data of a subset of the Five9 Records consisting only of those numbers with missing name and/or address information. Either Ms. Verkhovskaya failed to produce this reverse-append LexisNexis data file, or she misspoke and was instead alluding to the LexisNexis data file “LN_Output_Dish_II_busreslookupfile.xlsx” consisting of various data fields, including name and address fields, for 23,681 telephone numbers, including 23,463 for which there *is* identifying information in the Five9 Records. While Ms. Verkhovskaya may have been alluding to this LexisNexis file, she testified at deposition that the only field she used in the “LN_Output_Dish_II_busreslookupfile.xlsx” data file was the field that purports to identify whether a telephone number is a business number. She testified that no other fields were analyzed for this case.³² Hence, her testimony appears to be inconsistent on this point.

37. For purposes of this report I will assume that when Ms. Verkhovskaya referred in her report to the LexisNexis data she obtained and upon which she would rely to fill in the names and addresses for those telephone numbers for which identifying information is missing in the Five9 Records, she was alluding to the LexisNexis file that was produced as “LN_Output_Dish_II_busreslookupfile.xlsx.” If additional clarifying information or data become available I will revise my report and opinions as necessary.
38. The validity and accuracy of the LexisNexis reverse append name and address information is not known. Ms. Verkhovskaya testified that she is not privy to the details about how LexisNexis obtains its data; that LexisNexis did not guarantee or warrant the accuracy of the data it supplied; and that no one at A.B. Data verified LexisNexis’s work.³³ In addition, the LexisNexis data are not complete. The LexisNexis output data that was produced in discovery contains 23,681 unique telephone numbers, of which

³¹ *Verkhovskaya Deposition*, pp. 129:24-130:12.

³² *Verkhovskaya Deposition*, pp. 105:16-112:4.

³³ *Verkhovskaya Deposition*, pp. 102-103.

5,377—well over 20 percent-- have no name information associated with them (see Exhibit 8).

39. Ms. Verkhovskaya testified at deposition that she has conducted tests of the LexisNexis data and found it to be 86% to 97% accurate.³⁴ She has not, however, produced any documentation supporting such an analysis that would allow me to determine what she means by “accurate,”³⁵ nor whether her tests are scientifically or statistically valid and unbiased. Ms. Verkhovskaya testified that her bachelor’s degree is in nursing, she has no post-graduate courses or degrees, and she has never taken a statistics course.³⁶ I understand that counsel for DISH has requested documentation of her tests and if such documentation is provided I reserve the right to augment my report with results of my analysis of her methodology and results.
40. While I am unable to assess the validity of Ms. Verkhovskaya’s tests of LexisNexis’s data, I have reviewed the data provided for internal consistency within the datasets and for consistency across the datasets. I found several anomalies and inconsistencies in the data that call into question their accuracy.
41. First, I noted that in the LexisNexis data, the same telephone number is in some cases associated with multiple names. Ms. Verkhovskaya offers no methodology for determining which name is the correct one—i.e., the name of the class member—for purposes of this case. Exhibit 9 provides examples of the same number being associated with multiple names.
42. I have also compared the Five9 Records and the LexisNexis name and information data. Of the 23,681 telephone numbers in the LexisNexis data and the corresponding Five9 Records, 18,149 have at least partial name information in both the dialer data and the LexisNexis data, as shown in Exhibit 10. If both sources of data are accurate, the identifying information should match in both lists.

³⁴ *Verkhovskaya Deposition*, pp. 71-72.

³⁵ There are a variety of methods that could be employed to determine the accuracy of names data. A precise method would be an exact match on first and last name along with an exact match on city and state. Less precise methods would match only on first and last name or last name and part of the first name (such as first initial) or consider fuzzy matches (e.g. “Smith” and “Smyth” or “John” and “Jon”) to be the same.

³⁶ *Verkhovskaya Deposition*, pp. 22:12-23:20.

43. I performed a name match between the LexisNexis data and the Five9 Records. The name matching procedure focused only on identifying any potential match between the two data sources based upon the following criteria:³⁷
- a. Last Name, City and State match
 - b. Last Name and City (State is Missing)
 - c. Last Name and State (City is Missing)
 - d. Last Name (City and State are Missing)
 - e. First Name, City and State
 - f. First Name and Last Name
44. I considered the identifying information associated with a phone number to match in the two data sets if any of the above criteria were met; if there were multiple names in the LexisNexis data I considered the data to match if *any* of the names by phone number matched to the Five9 Records. Based upon this procedure and these assumptions, I found 4,379 phone numbers (out of 18,149), or over 24 percent, that did not have a name match by *any* of the above criteria (see Exhibit 10). Exhibit 11 provides examples of these name mismatches.
45. The analysis just discussed ignores some information provided in the LexisNexis data. LexisNexis provides data fields labelled as “first seen” and “last seen” for each telephone number/name observation. These fields are populated with dates. Ms. Verkhovskaya testified that she does not know how to interpret these fields in the LexisNexis data and that she made no use or analysis of them.³⁸
46. Upon examination of these fields, a straightforward interpretation would suggest that the “first seen” date is the date that the telephone number was first seen by LexisNexis as associated with the name given in that row; and that the “last seen” date is the date that the telephone number was last seen by LexisNexis as associated with the name given in that row. By that interpretation, however, the data appear to be inconsistent with Ms. Verkhovskaya’s testimony (for which there is no documentary support) that she requested of LexisNexis and was supplied data by LexisNexis only for the relevant time

³⁷ I also allowed for fuzzy matches when similar sounding names were detected (e.g., “smith” and “smyth”).

³⁸ *Verkhovskaya Deposition*, pp. 116:20-117:16.

period—between 2010 and 2011.³⁹ In many cases, the “first seen” and “last seen” dates for a telephone number fall outside the relevant time range (i.e., they both predate May 2010 or postdate August 2011). Thus, for those records, the date information would suggest that LexisNexis has no observations that apply to the relevant dates. Ms. Verkhovskaya admits in her deposition that if (hypothetically) the “first seen date” is after 2011, the telephone number could have been under someone else’s name or could have been a business number before that.⁴⁰

47. In addition, I have analyzed the date information and find that in many cases it is internally inconsistent. Specifically, in some instances, the LexisNexis data have multiple names for a given telephone number, and the date ranges in which the names apparently apply overlap. I have not quantified the complete number of telephone numbers that have overlap as of the time of this report, but I found a number of instances of this phenomenon. Exhibit 9 provides examples. The fact that some date ranges overlap for the same telephone number means that even within the date ranges that appear to be delimited by LexisNexis, LexisNexis cannot narrow down the subscriber to the number to a single person.
48. If in fact the “first seen” and “last seen” fields delimit the applicable dates of the names provided for a given telephone number, it would be incorrect to ignore the date information when applying the LexisNexis data. I find that in the LexisNexis data, there are 7,166 telephone numbers of 18,304 for which there is name information, but *no name information* that is delimited within the relevant dates. Exhibit 12 shows these results.
49. There are 11,037 telephone numbers for which there is at least partial name information in the dialer data and also there is name information in the LexisNexis data that falls within the relevant time period according to the date delimiters. To further assess the consistency of the data, I analyzed whether the identifying information in the dialer data matches the identifying information in the LexisNexis data when limited only to the name that falls within the relevant time period. I found that only 8,616 phone numbers match between the dialer data and LexisNexis data when the data are filtered to include

³⁹ Verkhovskaya Deposition, pp. 118:7-9.

⁴⁰ Verkhovskaya Deposition, p. 119.

only phone numbers that have name information during the relevant time period. Hence, of 18,149 unique telephone numbers with name information in both the LexisNexis and the Five9 Records data sets, only 8,616—less than half—have matching name identification for the same time period. I present these results in Exhibit 13.

50. The significant number of mismatches along with the overlap of date information within the LexisNexis data calls into question the validity of both data sets. The origin and definition of the name and address information data in the Five9 Records are unknown, as discussed earlier; but neither do the LexisNexis data have documented validity. In addition, the LexisNexis data are incomplete, may not uniformly pertain to the relevant time period, and do not uniquely identify individuals with a given telephone number even within the relevant time period.

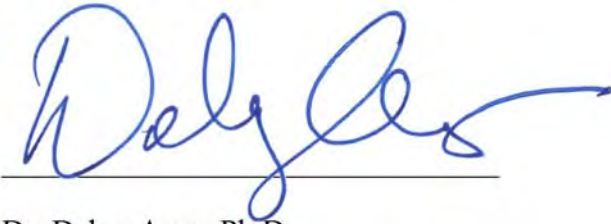
D. Ms. Verkhovskaya does not account for other means of providing consent to be called.

51. Finally, Ms. Verkhovskaya's methodology does not address the possibility that customers may have explicitly provided consent to be called by DISH for at least some of the calls despite having entered their telephone number on a DNC list. Each called party in the Class I and Class II lists received a connected call more than once, by construction of the lists (see step 1 of Exhibits 3, 4 and 5). It is possible that the customer answered the first call, asked the caller to call back at another time (such as a more convenient time or when another member of the household was available). Ms. Verkhovskaya testified that telephone numbers that were called more than once may include instances in which the called party asked the caller to call back.⁴¹ I understand from counsel that a call does not violate the TCPA if the called party explicitly requests the call, even if the telephone number called is on a DNC. Ms. Verkhovskaya's methodology therefore does not include a means to identify or exclude telephone numbers or calls for which consent was provided on an earlier call. When asked at deposition, Ms. Verkhovskaya was not able to offer a means of ascertaining such information other than via an individual inquiry using a questionnaire, telephone call, or similar means.

⁴¹ Verkhovskaya Deposition, p. 95.

V. CONCLUSION

52. Based on my review of the materials in this case and Ms. Verkhovskaya's corrected expert report, I conclude that Plaintiff has not provided a complete or implementable methodology for ascertaining either proposed class in this case for all of the reasons explained in this report. I hold and present these conclusions and opinions to a reasonable degree of scientific, analytical, and statistical certainty.

A handwritten signature in blue ink, appearing to read 'Debra Aron', is written over a horizontal line.

Dr. Debra Aron, Ph.D.

Principal and Managing Director, Navigant Economics

March 12, 2015

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EDUCATION

Ph.D., Economics, UNIVERSITY OF CHICAGO, Chicago, IL, 1985
A.B. (summa cum laude), Economics, UNIVERSITY OF CALIFORNIA AT LOS ANGELES, Los Angeles, CA, 1979

CURRENT POSITIONS

NAVIGANT ECONOMICS, Evanston, IL, 2010-present
Principal and Managing Director
NORTHWESTERN UNIVERSITY, Communication Systems Strategy and Management Program, School of Communication, Evanston, IL, 2000 - present
Adjunct Associate Professor

ACADEMIC AND PROFESSIONAL EXPERIENCE

LECG, LLC Evanston, IL, 1995-2010
Managing Director
Office Director, LECG Evanston

NORTHWESTERN UNIVERSITY, J. L. Kellogg Graduate School of Management, Evanston, IL, 1985-1995
Visiting Assistant Professor of Managerial Economics, 1993-1995
Assistant Professor of Managerial Economics, 1985-1992

HOOVER INSTITUTION at Stanford University, 1992-1993
National Fellow

UNIVERSITY OF CHICAGO, Department of Economics, Chicago, IL, 1983-1984
Instructor

CIVIL AERONAUTICS BOARD, Office of Economic Analysis, Washington, DC,
Summers, 1979 and 1980
Staff Economist

HONORS & AWARDS

Guthman Research Chair, Kellogg Graduate School of Management, Northwestern University, Summer 1994.
Hoover National Fellowship, Hoover Institution, 1992-1993.
Faculty Research Fellow, National Bureau of Economic Research, 1987-1990.
Pepsico Research Chair, Northwestern University, 1990.
Kellogg Research Professorship, Northwestern University, 1989.
National Science Foundation Research Grant, 1987-1988.
Buchanan Chair, Kellogg Graduate School of Management, Northwestern University, 1987-1988.
IBM Chair, Kellogg Graduate School of Management, Northwestern University, 1986-1987.

RESEARCH INTERESTS

Industrial organization, antitrust economics, business strategy, pricing, information industries, network industries, telecommunications policy, theory of the firm, compensation and incentives.

TEACHING

Courses taught: Pricing Strategy; Information, Communication, and Competition (economics of strategy and competition); Intermediate Microeconomic Theory; Managerial Economics (microeconomic theory as applied to business strategy and decision making) at the M.B.A. level, The Economics of Information at the Ph.D. level.

Also qualified to teach: graduate Microeconomic Theory; Industrial Organization and Labor Economics; the Economics of Personnel; Public Finance; Project Evaluation; Applied Game Theory.

PUBLICATIONS AND WORKING PAPERS

“An Empirical Analysis of Regulator Mandates on the Pass Through of Switched Access Fees for In-State Long-Distance Telecommunications in the U.S.,” with David E. Burnstein, Ana Danies, and Gerry Keith, June 19, 2013. Available at SSRN: <http://ssrn.com/abstract=1674082>.

Contributing author, *ABA Section of Antitrust Law, Telecom Antitrust Handbook*, Second Edition, (Chicago: American Bar Association), March 2013.

- "The Effects of Legacy Pricing Regulation on Adoption of Broadband Service in the United States," with Allan T. Ingraham, *Review of Network Economics*, vol. 11, issue 4, 2012.
- "Social Welfare Implications of Liability Rules in Major Environmental Damages Cases," with Francis X. Pampush, *Environmental Litigation Committee Newsletter*, Fall 2011.
- "Regulatory Policy and the Reverse Cellophane Fallacy," with David E. Burnstein, *Journal of Competition Law and Economics* 2010; doi: 10.1093/joclec/nhp033.
- "Investment in Next Generation Networks and Wholesale Telecommunications Regulation," with Robert W. Crandall, November 3, 2008. Available at SSRN: <http://ssrn.com/abstract=1294910>.
- "Pricing Principles and Pricing Methodologies for Essential Facilities," May 2008. Contributing author, *ABA Section of Antitrust Law, Telecom Antitrust Handbook*, (2005), (Chicago: American Bar Association), 2005.
- "The Proper Treatment of Spare Network Capacity in Regulatory Cost Models," with Ana Danies, May 2005. Available at SSRN http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2133365.
- "State Commissions Systematically Have Set UNE Prices Below Their Actual Costs," with Frank Pampush and E. Gerry Keith, 2004.
- "Broadband Adoption in the United States: An Empirical Analysis," with David E. Burnstein, in *Down to the Wire: Studies in the Diffusion and Regulation of Telecommunications Technologies*, Allan Shampine, ed., (Nova Science Publishers, Hauppauge, NY, 2003).
- "Developments in the Theory of Vertical Foreclosure as Applied to Regulated Telecommunications Markets" (March, 2002), Prepared for Presentation at The American Bar Association Section of Antitrust Law, 50th Annual Spring Meeting.
- "Modifications at HHIs for Vertical Supply Relationships" with Wenqing Li and James Langenfeld, White Paper submitted to European Commission, February 2000.
- "Economic Theories of Tying and Foreclosure Applied—And Not Applied—in *Microsoft*," with Steven S. Wildman, *Antitrust*, vol. 14, no. 1, 1999, pp.48-52.
- "Effecting a Price Squeeze Through Bundled Pricing," with Steven S. Wildman, in *Competition, Regulation, and Convergence: Current Trends in Telecommunications Policy Research*, Gillett and Vogelsang, eds. (New Jersey: Lawrence Erlbaum Associates, Inc.) 1999, pp. 1-17.
- "Worldwide Wait? How the Telecom Act's Unbundling Requirements Slow the Development of the Network Infrastructure," with Ken Dunmore and Frank Pampush, *Industrial and Corporate Change*, vol.7, no. 4, 1998, pp. 615-621.
- "The Pricing of Customer Access in Telecommunications," with Steven S. Wildman, *Industrial and Corporate Change*, vol. 5, no. 4, 1996, pp. 1029-1047.
- "Bonus and Penalty Schemes as Equilibrium Incentive Devices, With Application to Manufacturing Systems," with Pau Olivella, *Journal of Law, Economics, and Organization*, 10, Spring 1994, pp. 1-34.
- "Diversification as a Strategic Preemptive Weapon," *Journal of Economics and Management Strategy*, 2, Spring 1993, pp. 41-70.
- "Using the Capital Market as a Monitor: Corporate Spin-offs in an Agency Framework," *RAND Journal of Economics*, 22, Winter 1991, pp. 505-518.

“Firm Organization and the Economic Approach to Personnel Management, *American Economic Review*, vol. 80, no. 2, May 1990, pp. 23-27.

“The Introduction of New Products,” with Edward P. Lazear, *American Economic Review*, vol. 80, no. 2, May 1990, pp. 421-426.

“Ability, Moral Hazard, Firm Size, and Diversification,” *RAND Journal of Economics*, 19, Spring 1988, pp. 72-87.

“Worker Reputation and Productivity Incentives,” *Journal of Labor Economics*, vol. 5, no. 4, October 1987, part 2, pp. S87-S106.

“The Role of Managerial Ability and Moral Hazard in the Determination of Firm Size, Growth and Diversification,” Ph.D. Dissertation, University of Chicago, August 1985.

REPRESENTATIVE PRESENTATIONS

Panelist, “How to Manage Conversations with Expert Witnesses,” ABA Section of Litigation, Environmental, Mass Torts, & Products Liability Litigation Committees’ Joint CLE Seminar, Avon, Colorado, January 30, 2014.

“The Effects of Legacy Pricing Regulation on Adoption of Broadband Service in the United States,” Federal Communications Commission, Washington, D.C., June 11, 2013.

Panelist, “A Primer: Getting the Most Out of Your Experts — Do’s and Don’ts in the Use of Expert Witnesses: Learning from the Experts,” ABA Section of Litigation Annual Conference, Chicago, Illinois, April 26, 2013.

“An Empirical Analysis of Regulator Mandates on the Pass Through of Switched Access Fees for In-State Long-Distance Telecommunications in the U.S.,” with David E. Burnstein, Ana Danies, and Gerry Keith, Wesleyan University, Middletown, Connecticut, March 27, 2013.

“The Effects of Legacy Pricing Regulation on Adoption of Broadband Service in the United States,” with Allan Ingraham, The 40th Research Conference on Communication, Information and Internet Policy (TPRC), September 22, 2012.

Panelist, “Two Decades of Daubert: Junk Science Replaced by Junk Rulings?” ABA Section of Litigation Annual Conference, Washington, DC, April 20, 2012.

“The Effects of Legacy Pricing Regulation on Adoption of Broadband Service in the United States,” with Allan Ingraham, New America Foundation, workshop on Defining and Measuring Meaningful Broadband Adoption, April 11, 2012, Washington, DC.

“Social Welfare Implications of Liability Rules in Major Environmental Damages Cases,” with Francis X. Pampush, American Bar Association Sections of Litigation and Criminal Justice Joint Annual Conference, April 15, 2011, Miami, Florida.

“Consumer Benefits of Intrastate Access Rate Reform in Minnesota,” Center for Science, Technology and Public Policy, Humphrey School of Public Affairs, University of Minnesota, January 26, 2011.

“An Empirical Analysis of Regulator Mandates on the Pass Through of Switched Access Fees for In-State Long-Distance Telecommunications in the U.S.,” with David E. Burnstein, Ana Danies, and Gerry Keith, The 38th Research Conference on Communication, Information and Internet Policy (Telecommunications Policy Research Conference), October 3, 2010, George Mason University Law School, Arlington, Virginia.

“Pricing Principles and Pricing Methodologies for Essential Facilities,” The 36th Research Conference on Communication, Information and Internet Policy (TPRC), September 27, 2008.

“Regulatory Policy and the Reverse Cellophane Fallacy,” with David E. Burnstein, 17th Biennial International Telecommunications Society Conference, Montréal, Québec, Canada, June 24-27, 2008.

“The Use of Economic Analysis in ‘Industry Expert’ Testimony,” CLE course, XPRT Forum, March 7, 2008.

Presentations to the New Jersey Board of Public Utilities and to the New Jersey Legislature’s Telecommunications Utilities Committee regarding the economic principles for a forward-looking regulatory agenda in light of the facts of competition nationwide and in New Jersey, and the costs of regulation, October – November 2006.

“The Interaction of Regulation with Economics and Financial Analysis in Litigation, Policy, and Strategy Consulting,” CLE course, XPRT Forum, October 7, 2006.

“Comments on ‘Economic Analysis in FCC Merger Proceedings,’” Conference on Economic Analysis and FCC Decisionmaking, presented by the Federal Communications Bar Association (FCBA) and Stanford Institute for Economic Policy Research (SIEPR), Washington D.C., March 15, 2006.

“Economic Principles for Consumer Protection Rules,” *Pri Telecom / Tech Briefing*, Santa Clara, California, October 11, 2005.

“The Proper Treatment of Spare Network Capacity in Regulatory Cost Models,” Presentation at the Advanced Workshop in Regulation and Competition, Center for Research in Regulated Industries, Skytop, Pennsylvania, May 2005.

“Telecommunications Regulation: What’s Obsolete? What Will Become Obsolete?” Presentation at the State and City Telecom Reform Conference, Heartland Institute, Chicago, Illinois, December 2004.

“Trends in Telecommunications Demand & Supply,” Presentation at the 46th Annual NARUC Regulatory Studies Program, Michigan State University, August 2004.

“The Economic Costs of Proposed Wireless Regulations in California,” Presentation to Commissioners Brown and Kennedy, California Public Utilities Commission, San Francisco, California, April 2004.

“The Economics of UNE Pricing: Presentation to Staff,” Ex parte presentation to the staff of the FCC, in FCC WC Docket No. 03-173: Review of the Commission’s Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers, March 2004.

“The High Cost of Proposed New Wireless Regulations,” Presentation to the Pacific Research Institute conference “Regulating Wireless in California: Bill of Rights... or Wrongs?,” San Francisco, April 2003.

“The TELRIC Showdown,” Panelist, NARUC Staff Subcommittee on Telecommunications, 2002 Annual Convention, Chicago, Illinois, November 2002.

“Economic Principles for Efficient Pricing of Municipal Rights-of-Way,” National Association of Telecommunications Officers and Advisors (NATOA), Chicago, Illinois, September 2002.

- “Trends in Voice and Broadband Competition in Telecommunications Markets: Markets, Strategies, and Regulation,” 82nd Annual Convention of the Indiana Telecommunications Association, Lexington, Kentucky, June 2002.
- “Broadband Deployment in the United States,” Emerging Opportunities in Broadband Symposium, Northwestern University, Evanston, Illinois, December 2001.
- “Local Competition in Illinois,” Illinois Telecommunications Symposium, Northwestern University, Evanston, Illinois, December 2000.
- “Licensing and Access to Innovations in Telecommunications and Information Services,” Telecommunications Policy Research Conference, Alexandria, Virginia, September 2000.
- “Effecting a Price Squeeze Through Bundled Pricing,” Federal Communications Commission, Washington, D.C., May 1999.
- “Competitive and Strategic Use of Optional Calling Plans and Volume Pricing Plans,” The Institute for International Research Conference for Competitive Pricing of Telecommunications Services, Chicago, Illinois, July 1998.
- “Effecting a Price Squeeze Through Bundled Pricing,” Consortium for Research in Telecommunications Policy Conference, University of Michigan, Ann Arbor, Michigan, June 1998.
- “The Pricing of Customer Access in Telecommunications,” Conference on Public Policy and Corporate Strategy for the Information Economy, Evanston, Illinois, May 1996.
- “Diversification as a Strategic Preemptive Weapon,” University of Iowa, Iowa City, Iowa, February 1994.
- “Diversification as a Strategic Preemptive Weapon,” University of Buffalo, Buffalo, New York, February 1994.
- “Diversification as a Strategic Preemptive Weapon,” University of Southern California, Los Angeles, California, December 1993.
- “Strategic Pricing,” Winter Meetings of the Econometric Society, Discussant, Anaheim, California, December 1993.
- “Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets,” Michigan State University, Lansing, Michigan, November 1993.
- “Diversification as a Strategic Preemptive Weapon,” Rutgers University, New Brunswick, New Jersey, November 1993.
- “Diversification as a Strategic Preemptive Weapon,” University of California at Santa Cruz, Santa Cruz, California, November 1993.
- “Diversification as a Strategic Preemptive Weapon,” Graduate School of Business, Stanford University, Stanford, California, November 1993.
- “Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets,” Purdue University, West Lafayette, Indiana, September 1993.
- “Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets,” Summer Meetings of the Econometric Society, Boston University, Boston, Massachusetts, June 1993.

“Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets,” University of California, Department of Economics, Berkeley, California, May 1993.

“Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets,” Stanford University, Graduate School of Business, Stanford, California, May 1993.

“Diversification as a Strategic Preemptive Weapon,” Stanford University, Graduate School of Business, Stanford, California, April 1993.

“Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets,” Hoover Institution, Stanford, California, April 1993.

“Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets,” University of California, Graduate School of Business, Berkeley, California, February 1993.

“Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets,” Stanford University, Department of Economics, Stanford, California, February 1993.

“Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets,” Hoover Institution, Stanford, California, January 1993.

“Pricing Strategies,” Session Discussant, 1992 North American Winter Meeting of The Econometric Society, Anaheim, California, January 1992.

“Diversification as a Strategic Preemptive Weapon,” University of Toronto, Toronto, Canada, November 1991.

“Diversification as a Strategic Preemptive Weapon,” Queen’s University, Kingston, Ontario, Canada, November 1991.

“Bonuses and Penalties as Equilibrium Incentive Devices, with Application to Manufacturing Systems,” University of Chicago, Chicago, Illinois, June 1991.

“The Timing of Entry into New Markets,” Summer Meetings of the Econometric Society, University of Pennsylvania, Philadelphia, Pennsylvania, June 1991.

“Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets,” University of Chicago, Chicago, Illinois, April 1991.

“Bonuses and Penalties as Equilibrium Incentive Devices, with Application to Manufacturing Systems,” Winter Meetings of the Econometric Society, Washington, D.C., December 1990.

“Corporate Spin-offs in an Agency Framework,” University of Washington, Seattle, Washington, October 1990.

“The Timing of Entry Into New Markets,” University of British Columbia, Vancouver, British Columbia, October 1990.

“Corporate Spin-offs in an Agency Framework,” Texas A&M University, College Station, Texas, April 1990.

“Firm Organization and the Economic Approach to Personnel Management,” Winter Meetings of the American Economic Association, New York, New York, December 1989.

“Corporate Spin-offs in an Agency Framework,” Western Finance Association Meetings, Seattle, Washington, June 1989.

“Corporate Spin-offs in an Agency Framework,” University of Rochester, Rochester, New York, May 1989.

“Corporate Spin-offs in an Agency Framework,” North American Summer Meetings of the Econometric Society, Minneapolis, Minnesota, June 1988.

“Competition, Relativism, and Market Choice,” North American Summer Meetings of the Econometric Society, Berkeley, California, June 1987.

“Competition, Relativism, and Market Choice,” University of Chicago, Chicago, Illinois, April 1987.

“Rate Reform and Competition in Electric Power,” Discussant, Conference on Competitive Issues in Electric Power, Northwestern University, Evanston, Illinois, March 1987.

“Worker Reputation and Productivity Incentives,” New Economics of Personnel Conference, Arizona State University, Tempe, Arizona, April 1986.

“Ability, Moral Hazard, and Firm Diversification,” Various Universities, 1985, 1994, including Yale University, University of Rochester, Stanford University, University of Minnesota, California Institute of Technology, Duke University, Northwestern University, Brown University, Harvard University, University of California - Los Angeles, University of Pennsylvania.

ACADEMIC JOURNAL REFEREEING

Dr. Aron has served as a referee for *The Rand Journal of Economics*, *the Journal of Political Economy*, *the Journal of Finance*, *the American Economic Review*, *the Quarterly Journal of Economics*, *the Journal of Industrial Economics*, *the Journal of Economics and Business*, *the Journal of Economic Theory*, *the Journal of Labor Economics*, *the Review of Industrial Organization*, *the European Economic Review*, *the Journal of Economics and Management Strategy*, *the International Review of Economics and Business*, *the Quarterly Review of Economics and Business*, *Management Science*, *the Journal of Public Economics*, *the Journal of Institutional and Theoretical Economics*, and the National Science Foundation.

SELECTED TESTIMONY AND OTHER ENGAGEMENTS (2006-present)

Deposition and trial testimony at jury trial in litigation before the United States District Court for the District of Delaware, on damages in a patent infringement matter, November 2014 and February 2015.

Testimony in arbitration regarding compensation for costs of intellectual property associated with regulatory compliance under the Federal Insecticide, Fungicide, and Rodenticide Act, October 2014.

Deposition and trial testimony at jury trial in litigation before the United States District Court for the District of Delaware, on damages in a patent infringement matter, July 2014 and October 2014.

Prefiled written expert testimony before the California Public Utilities Commission in matter regarding regulation of residential basic local service rates of a telecommunications provider, August 2014 and September 2014.

Deposition testimony in litigation before the United States District Court for the Eastern District of Wisconsin in putative class action matter related to the Telecommunications Consumer Protection Act (TCPA), regarding class certification, September 2014.

Deposition testimony in litigation before the United States District Court for the Northern District of Illinois, Eastern Division in putative class action matter related to the Telecommunications Consumer Protection Act (TCPA), regarding the availability of data on telecommunications customers, July 2014.

Deposition testimony in litigation before the United States District Court, Southern District of New York, In re: Methyl Tertiary Butyl Ether Products Liability Litigation, Commonwealth of Puerto Rico, et al. v. Shell Oil Co., et al., regarding damages, May 2014.

Deposition testimony in litigation before the United States District Court for the Northern District of Ohio, Western Division, in price fixing litigation in the polyurethane foam industry, regarding damages, April 2014 and September 2014.

Deposition and hearing testimony in litigation before the United States District Court, District of Colorado, in putative class action matter related to the Telecommunications Consumer Protection Act (TCPA), regarding class certification, September 2013 and March 2014.

Deposition testimony in litigation before the United States District Court, Southern District of New York, In re: Methyl Tertiary Butyl Ether ("MTBE") Products Liability Litigation, New Jersey Dep't of Env'tl. Prot., et al. v. Atlantic Richfield Co., et al., regarding "economic feasibility" of alternative fuels, May 2013.

Prefiled written testimony before the Regulatory Commission of Alaska on the public welfare and public policy implications of "carrier of last resort" obligations for telecommunications providers, in matter pertaining to petition by a long distance provider to be relieved of its carrier of last resort obligations in certain areas of Alaska, January and April 2013.

Expert report and rebuttal expert report in matter before the Western District of North Carolina Charlotte Division in fraudulent conveyance matter in the telecommunications industry, January 2013.

Expert report on damages in matter before Superior Court for the State of Alaska, in contract dispute regarding large marine engines, November 2012.

Expert report in matter before the Court of Common Pleas, Allegheny County, Pennsylvania, regarding damages in a tortious interference matter in the telecommunications industry, June 2012.

Deposition testimony in ERISA litigation before the United States District Court for the District of Kansas, regarding the competitive history and landscape of the communications marketplace and business context of cost reductions, November 2011.

Deposition testimony on damages estimation in litigation before the United States District Court, Northern District of Texas, Dallas Division, regarding access charges for long distance calls made using calling cards, November 2011.

Testimony before the North Carolina Utilities Commission regarding the regulatory history of the US telecommunications switched access regime and the effects on consumers and competition of reducing intra-industry subsidies via reform of interconnection prices, October 2011.

Prefiled testimony in regulatory proceeding before the Kentucky Public Service Commission regarding intercarrier compensation in the telecommunications industry, September 2011.

Consulting expert regarding damages in potential litigation alleging misleading advertising of prices for telecommunications services, June 2011.

Consulting expert regarding costs relevant to early termination fees in consumer term contracts, April 2011.

Testimony before the Utilities Committee of the Kansas Legislature regarding the status of competition in telecommunications markets in Kansas, February 2011.

Testimony before the Telecommunications Committee of the Legislature of the state of Washington regarding the consumer benefits and competitive effects of switched access reform, February 2011.

Consulting expert in consumer class action matter involving the markets for mobile wireless handsets, 2010.

Presentation to the Access Reform Working Group of North Carolina (industry collaborative group consisting of industry members, Public Staff, and the Attorney General, assigned by the NC Utilities Commission to seek consensus on access reform) regarding the consumer benefits of reducing intra-industry subsidies via reform of inter-network prices, September 2010.

Expert testimony before the Arizona Corporation Commission, the New Jersey Board of Public Utilities, and the Kentucky Public Service Commission regarding the regulatory history of the US switched access regime and the effects on consumers and competition of reducing intra-industry subsidies via reform of interconnection prices, 2009-2010.

Deposition testimony on damages in litigation before the United States District Court, Western District of Texas, Austin Division, regarding intercarrier “access fees” for exchange of Internet Protocol telecommunications traffic, October 2009.

Expert testimony on damages before the Circuit Court for the Third Judicial Circuit, Madison County, Illinois in class action matter pertaining to allegations that a statutory refund required of defendant company was improperly distributed, October 2009.

Expert testimony before the New Jersey Board of Public Utilities regarding intrastate switched access charges and retail rate rebalancing, September 2009.

Advice and presentation to executives of a large Israeli telecommunications company regarding the Israeli regulatory regime, unbundling obligations, pricing, costing, and competitive reform, February 2009.

Deposition testimony in a matter before the Delaware Circuit Court regarding a contractual dispute, on the issue of irreparable harm pertaining to alleged violation of exclusive territory provisions, November 2008.

Written expert evidence before the Canadian Radio-television and Telecommunications Commission in the matter of an application to expand the obligations of regulated companies for the provision of certain broadband services; regarding the effects of the requested unbundling obligations on competition, investment, and social welfare in Canada, July 2008.

Deposition and jury trial testimony on causation and damages in a matter before the Superior Court of the State of California, County of Los Angeles on the telecommunications business environment and viability of particular telecommunications business models in the late 1990s/early 2000s in a matter regarding an alleged breach of contract in the mobile satellite services industry, April/July 2008.

Written expert declarations before the California Public Utilities Commission in the matter of a rulemaking regarding the anticipated effects on investment and social welfare of proposed modifications to regulations governing the use and retirement of facilities of regulated companies, January 2008.

Analysis of US and global subsea telecommunications fiber capacity investments and swap arrangements during the late 1990s and early 2000s, in a litigation matter alleging failure of defendant to disclose material information to plaintiffs (case settled before expert disclosure), 2008.

Written testimony before the Public Utility Commission of Texas regarding the regulatory philosophy of universal service policy, and competitive implications of proposed universal service cross-subsidy and distribution mechanisms, November 2007.

Expert evidence before the Canadian Radio-television and Telecommunications Commission regarding the economically appropriate methodology for pricing wholesale telecommunications services and essential facilities, October 2007.

Expert testimony before the Indiana Utility Regulatory Commission regarding the competitive effects on a new entrant in the video services marketplace of disclosure of highly detailed deployment data, August 2007.

Deposition testimony in a matter before the Oklahoma Court of Tax Review regarding the market factors affecting valuation of certain corporate assets during the relevant tax year of the dispute, June 2007.

Written evidence before the Canadian Radio-television and Telecommunications Commission regarding the proper economic principles that should govern determination of regulatory costs, and the effects of regulatory cost determination on economic efficiency and competition, May 2007.

Expert testimony before the New Jersey Board of Public Utilities regarding its review of telecommunications regulations and proposal to establish new regulations on incumbent and competitive wireline carriers, March 2007.

Damages analysis as consulting expert in an international arbitration matter regarding disputed availability of and access to subsea and terrestrial telecommunications fiber capacity from mid 1990s through mid 2000s, with focus in Asia and Europe, 2007.

Expert testimony before the Michigan Public Service Commission regarding the competitive effects of certain regulatory obligations and volume pricing rules, November 2006.

Damages analysis in price fixing matter in the ready-mix concrete industry (matter settled before report submitted), 2006.

Preliminary Expert Report of Debra J. Aron, "The U.S. Long-haul Fiber Optic Network Industry: 1996-2001," in a matter in the Superior Court of the state of California involving disputed investment in long haul capacity in the U.S., June 2006.

Expert testimony before the Kentucky Public Service Commission, Tennessee Regulatory Authority, and Mississippi Public Service Commission regarding the competitive effects of the proposed AT&T acquisition of BellSouth, June 2006.

Deposition testimony in a matter before the Oklahoma Court of Tax Review regarding the status of competition affecting defendant company and the likely economic effect of such competition on the forward looking value of company assets, March 2006.

Expert testimony before the California Public Utilities Commission regarding the competitive landscape in California and the desirability of establishing a Uniform Regulatory Framework for the telecommunications industry in the state of California, February 2006.

Deposition testimony and trial testimony in the Court of Chancery in the state of Delaware In and For New Castle County and in Circuit Court of Cook County, Illinois County Department, Chancery Division, regarding the possibility of "irreparable harm" to Sprint Nextel's wireless affiliates in connection with Sprint's acquisition of Nextel Corporation, November 2005 – July 2006.

PROFESSIONAL ORGANIZATIONS

Member, American Economic Association

Member, Econometric Society

Associate Member, American Bar Association

Past Member, Telecommunications Policy Research Conference Program Committee

March 2015

List of Documents Considered

Procedural Documents and Exhibits Therein, *Thomas H. Krakauer, on behalf of a class of persons, v. Dish Network, L.L.C.*, In the United States District Court for the Middle District of North Carolina, Durham Division, No. 1:14-cv-00333-CCE-JEP

Class Action Complaint, April 18, 2014

First Amended Class Action Complaint, December 1, 2014

Expert Declarations and Exhibits, *Thomas H. Krakauer, on behalf of a class of persons similarly situated, v. Dish Network, L.L.C.*, In the United States District Court for the Middle District of North Carolina, Durham Division, No. 1:14-cv-00333-CCE-JEP

Expert Report of Anya Verkhovskaya, A.B. Data, Ltd (with Exhibits), January 30, 2015

Depositions and Exhibits Therein, *Thomas H. Krakauer, on behalf of a class of persons, v. Dish Network, L.L.C.*, In the United States District Court for the Middle District of North Carolina, Durham Division, Case No: 14-CV-333

Deposition of Thomas H. Krakauer, October 14, 2014

Deposition of Anya Verkhovskaya, March 6, 2015

Third Party Materials

Craig Stroup and John Vu, "Numbering Resource Utilization in the United States: NRUF Data as of June 30, 2010, Porting and Toll-Free Data as of September 30, 2010," Federal Communications Commission, April 2013.

Data

ABDATA Invoice for 52272.pdf

ABDate_Ref 52272 DNC_20150116.xlsx

ABDate_Ref 52272 DNC_2015016 OUTPUT.xlsx

blocked.txt

BusinessNumberTable.csv

clean.txt

CONFIDENTIAL - SatelliteSystemsNetwork2010-20100501-20100531.xlsx

CONFIDENTIAL - SatelliteSystemsNetwork2010-20100601-20100630.xlsx

CONFIDENTIAL - SatelliteSystemsNetwork2010-20100701-20100731.csv

CONFIDENTIAL - SatelliteSystemsNetwork2010-20100801-20100831.xlsx

CONFIDENTIAL - SatelliteSystemsNetwork2010-20100901-20100930.csv
CONFIDENTIAL - SatelliteSystemsNetwork2010-20101001-20101031.csv
CONFIDENTIAL - SatelliteSystemsNetwork2010-20101101-20101130.csv
CONFIDENTIAL - SatelliteSystemsNetwork2010-20101201-20101231.csv
CONFIDENTIAL - SatelliteSystemsNetwork2010-20110101-20110131.csv
CONFIDENTIAL - SatelliteSystemsNetwork2010-20110201-20110228 (2).csv
CONFIDENTIAL - SatelliteSystemsNetwork2010-20110201-20110228.csv
CONFIDENTIAL - SatelliteSystemsNetwork2010-20110401-20110430.csv
CONFIDENTIAL - SatelliteSystemsNetwork2010-20110501-20110531.csv
CONFIDENTIAL - SatelliteSystemsNetwork2010-20110601-20110630.csv
CONFIDENTIAL - SatelliteSystemsNetwork2010-20110701-20110731.csv
CONFIDENTIAL - SatelliteSystemsNetwork2010-20110801-20110831.csv
detailed.txt
detailed.txt
Dish Retailer DNC Lit 2010 and older.zip
DISH_CustomerList_STELAcompliant.XLSX
Dish_II_busreslookupfile.csv
DNC Ref 52272.txt
dnc.txt
ebr.txt
Echostar_Internal_Upto_20101231.txt
Echostar_Retailer_Upto_20101231.txt
File from DNC with Coding.xlsx
IDNC_Part1.csv
IDNC_Part2.csv
initial request DNC - process.txt

invalid.txt

List for DNC work - 52272.xlsx

List for DNC work - 52272.xlsx

LN_Output_Dish_II_busreslookupfile.csv

LN_Output_Dish_II_busreslookupfile.xlsx

MainCallTable.csv

malformed.txt

Nexxa DNC Scrub Status Description.docx

Nexxa DNC Scrub Status Description.docx

Nexxa DNC Scrub Status Description.docx

Nexxa Order Complete RE Nexxa Order Confirmation RE DNC Ref 52272.txt

Nexxa Order Confirmation RE DNC Ref 52272.txt

Nexxa PO Confirmation_Ref 52272 DNC Coding_1-16.docx

NexxaDNCList.csv

renewing Neustar email string.txt

report.txt

response RE DNC - process.txt

Signed PO confirmation 52272.pdf

Ticket 14211 - Krakauer v DISH - File 1 - Needs Dedupe.xlsx

Ticket 14211 - Krakauer v DISH - File 2 - Needs Dedupe.xlsx

Ticket 14211 - Krakauer v Dish - File 3 - Needs Dedupe.xlsx

Ticket 14211 - Krakauer v DISH TCPA - Disposition List.xlsx

Ticket 14211 - Krakauer v DISH TCPA - Job 1.xlsx

To DNC Coding- Ref 52272.txt

wireless.txt

EXHIBIT 3 STEPS TAKEN TO IDENTIFY INDIVIDUALS IN THE NDNCR LIST		
Step No.	Objective	Resulting Unique Telephone Numbers
1	Determine from the list of connected calls in the Analysis Database the telephone numbers that were called more than once in a 12-month period.	58,151
2	Submit to data vendor Nexxa the list obtained in Step 1 to determine the telephone numbers that appear concurrently in this list and in the NDNCR as of April 1, 2010 (30 days before the first date covered by the Five9 Records).	23,625
3	Eliminate from the list obtained in Step 2 the telephone numbers identified as business telephone numbers in the Five9 Records in the relevant time frame.	22,350
4	Eliminate from the list obtained in Step 3 the telephone numbers identified by vendor LexisNexis as business telephone numbers during the relevant time frame.	22,232
5	Eliminate from the list obtained in Step 3 the numbers for which at least one of the connected calls was assigned the disposition code of "DISH Customer."	20,450
Notes: 1. Source: <i>Verkhovskaya Corrected Report</i> , pp. 9-11 2. All numbers are per the calculations of Ms. Verkhovskaya, which I do not purport to be correct.		

EXHIBIT 4		
STEPS TAKEN TO IDENTIFY INDIVIDUALS IN DISH'S INTERNAL DNC LIST		
Step No.	Objective	Resulting Unique Telephone Numbers from DISH's Internal DNC List
1	Determine from the list of connected calls in the Analysis Database the telephone numbers that were called more than once in a 12-month period.	58,151
2	Compare the list obtained in Step 1 to determine the telephone numbers that appear in this list and were also in DISH's internal DNC lists at least 30 days before the date of the first connected call.	8,590
3	Eliminate from the lists obtained in Step 2 the numbers identified as business numbers in the Five9 Records and the numbers identified by vendor LexisNexis as business numbers during the relevant time frame.	8,240
4	Eliminate from the list obtained in Step 3 the numbers for which at least one of the connected calls was assigned the disposition code of "DISH Customer."	7,117
<p><u>Notes:</u></p> <p>1. Source: <i>Verkhovskaya Corrected Report</i>, pp. 11-13.</p> <p>2. All numbers are per the calculations of Ms. Verkhovskaya, which I do not purport to be correct.</p>		

EXHIBIT 5 STEPS TAKEN TO IDENTIFY INDIVIDUALS IN SSN'S INTERNAL DNC LIST		
Step No.	Objective	Resulting Unique Telephone Numbers (from SSN's Internal DNC List)
1	Determine from the list of connected calls in the Analysis Database the telephone numbers that were called more than once in a 12-month period.	58,151
2	Extract from the list obtained in Step 1 the numbers identified in the Analysis Database as "Do Not Call" or "DNC" for which there were at least two connected calls 30 days after the "Do Not Call" designation.	787
3	Eliminate from the list obtained in Step 2 the numbers identified as business numbers in the Five9 Records and the numbers identified by vendor LexisNexis as business numbers during the relevant time frame.	749
4	Eliminate from the list obtained in Step 3 the numbers for which at least one of the connected calls was assigned the disposition code of "DISH Customer."	714
Notes: 1. Source: <i>Verkhovskaya Corrected Report</i> , pp. 13-14. 2. All numbers are per the calculations of Ms. Verkhovskaya, which I do not purport to be correct.		

EXHIBIT 6
EXAMPLES OF NUMBERS IDENTIFIED AS DISH
CUSTOMERS

Date	Telephone No.	Call Type	Disposition
Example 1			
5/26/2010		Outbound	Not Interested
9/15/2010		Outbound	Recycle
9/16/2010		Outbound	Dish Customer
Example 2			
7/2/2010		Outbound	Recycle
7/6/2010		Outbound	Recycle
7/10/2010		Outbound	Cable
8/26/2010		Outbound	Recycle
8/27/2010		Outbound	Dish Customer
1/27/2011		Outbound	Recycle
Example 3			
7/9/2010		Outbound	Contract Plus 1 Year
8/25/2010		Outbound	Dish Customer
1/19/2011		Outbound	Dish Customer
Example 4			
7/2/2010		Outbound	Recycle
7/6/2010		Outbound	Dish Customer
8/26/2010		Outbound	Recycle
8/27/2010		Outbound	Business
Notes: 1. Source: MainCallTable.csv			

EXHIBIT 7
SUMMARY OF CALL RECORDS THAT HAVE NAME
INFORMATION (BY UNIQUE PHONE NUMBER)

Category	Count	%
Complete	250,862	74.4%
Last Name Missing	26,102	7.7%
First Name Missing	94	0.0%
All Missing	14,101	4.2%
First or Last Missing	68	0.0%
Partially Missing	45,979	13.6%
Total	337,206	100.0%

Notes:

1. Source: MainCallTable.csv
2. Category
 - a. Complete - First and Last Name is never blank for any call for a given telephone number
 - b. Last Name Missing - Last Name field always blank for every call for a given telephone number
 - c. First Name Missing - First Name field is always blank for every call for a given telephone number
 - d. All Missing - First and Last Name fields are always blank for every call for a given telephone number
 - e. First or Last Missing - First Name field is sometimes blank across call records for a given telephone number or Last Name field is sometimes blank across call records for a given telephone number
 - f. Partially Missing - First and Last Name are sometimes blank across call records for a given telephone number

EXHIBIT 8
SUMMARY OF LEXISNEXIS DATA WITH NO
RELEVANT NAME INFORMATION

Category	Count	%
Name Information	18,304	77.3%
No Name Information	5,377	22.7%
Total	23,681	100.0%

Notes:

1. Source: LN_Output_Dish_II_busreslookupfile.xlsx
2. No Name Information - First Name and Last Name information are always blank for every record associated with a given unique telephone number

EXHIBIT 9
EXAMPLES OF LEXISNEXIS DATA WITH NAME DIFFERENCES

Phone No.	Account No.	Date First Seen	Date Last Seen	First Name	Middle Name	Last Name	Address	City	State

EXHIBIT 9
EXAMPLES OF LEXISNEXIS DATA WITH NAME DIFFERENCES

Phone No.	Account No.	Date First Seen	Date Last Seen	First Name	Middle Name	Last Name	Address	City	State
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Notes:

1. LN_Output_Dish_II_busreslookupfile.xlsx
2. A blank cell means that no information was provided in the source data

EXHIBIT 10
SUMMARY OF CALL RECORDS THAT HAVE NAME INFORMATION
LIMITED TO 23,681 PHONE NUMBERS SENT TO LEXISNEXIS

Category	Count	%
All Phone Numbers Sent to LexisNexis		
Complete or Partial Match by Name	13,770	58.1%
No Match by Name	4,379	18.5%
No Last Name Information in Dialer Data	155	0.7%
No Name Information in LexisNexis	5,377	22.7%
Total	23,681	100.0%
Numbers With at Least Partial Name Information in Both the Five9 Records and the LexisNexis Data		
Complete or Partial Match by Name	13,770	75.9%
No Match by Name	4,379	24.1%
Total	18,149	100.0%

Notes:

1. Sources: MainCallTable.csv, LN_Output_Dish_II_busreslookupfile.xlsx
2. Category
 - a. Complete or Partial Match by Name - At least one part of the name information matches between LexisNexis and the Five9 data
 - b. No Match by Name - No name components match between LexisNexis and Five9 data
 - c. No Last Name Information in Dialer Data – Five9 data is missing Last Name information.
 - d. No Name Information in LexisNexis - LexisNexis data did not have name information available

**EXHIBIT 11:
EXAMPLES OF NAME DIFFERENCES BETWEEN LEXISNEXIS AND FIVE9 DATA**

Index or Account No.	Date of Call	Phone No.	First Name	Last Name	Address	City	State
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Example 1:

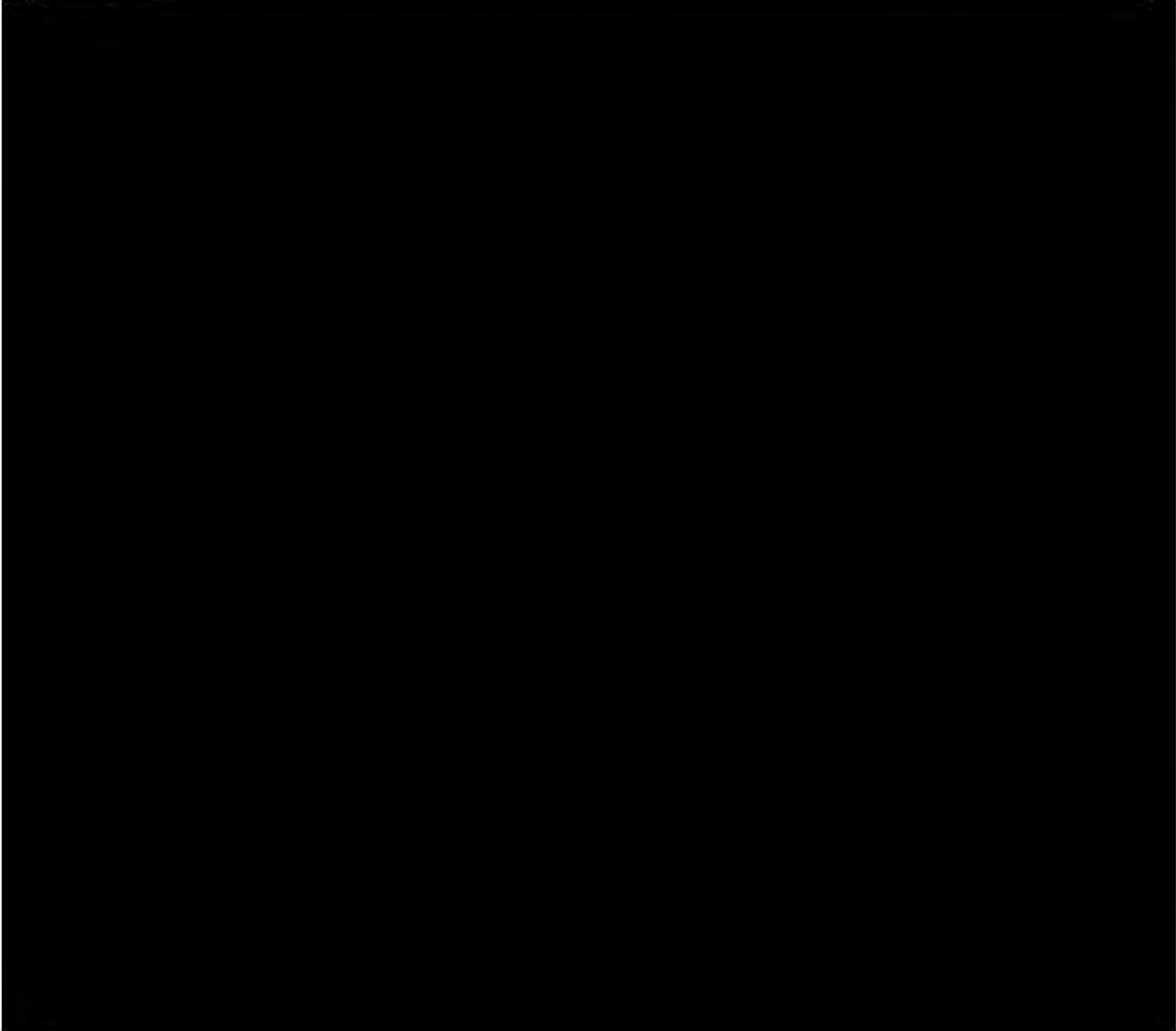
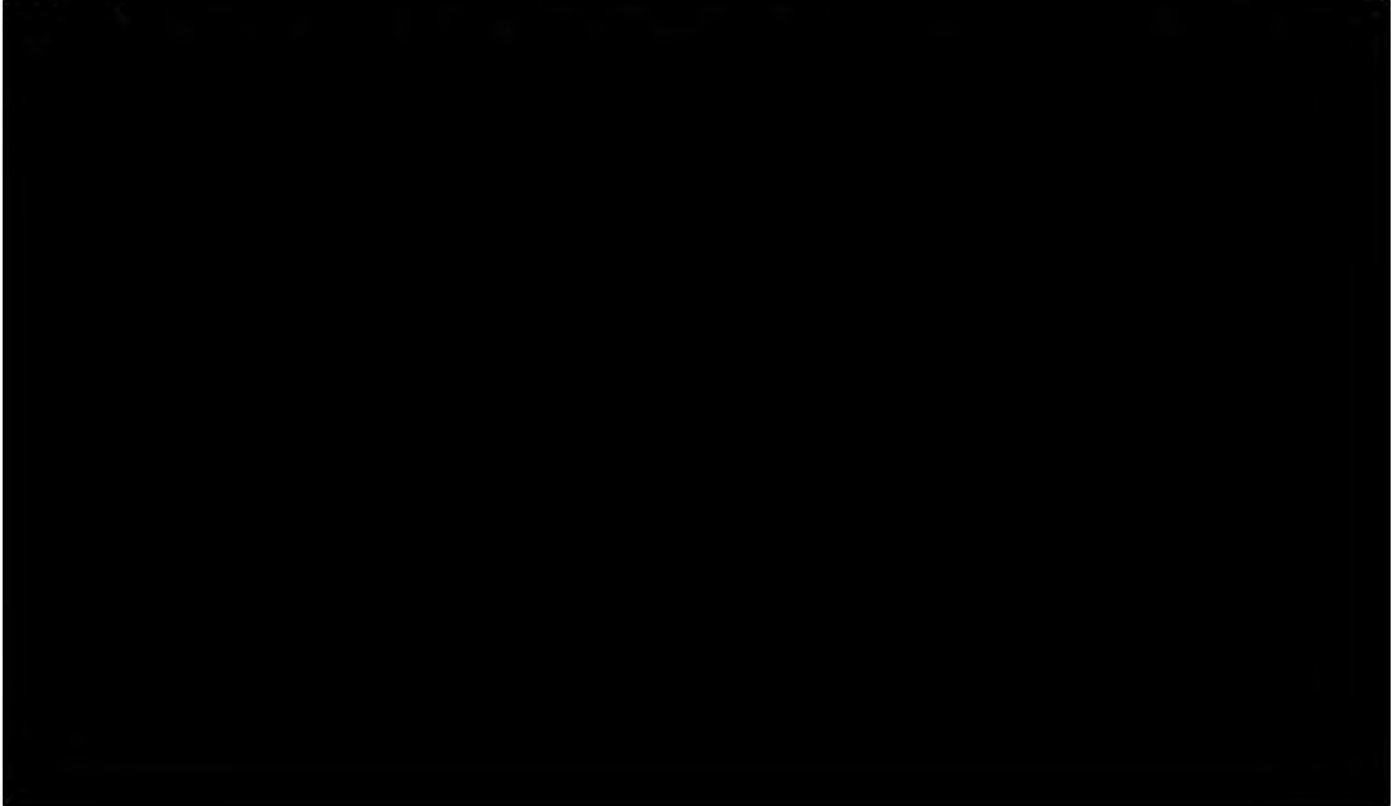


EXHIBIT 11:
EXAMPLES OF NAME DIFFERENCES BETWEEN LEXISNEXIS AND FIVE9 DATA

Index or Account No.	Date of Call	Phone No.	First Name	Last Name	Address	City	State
-------------------------------------	---------------------	------------------	-------------------	------------------	----------------	-------------	--------------



**EXHIBIT 12:
SUMMARY OF PHONE NUMBERS THAT HAVE NAME INFORMATION LIMITED TO 23,681 PHONE NUMBERS SENT
TO LEXISNEXIS**

Name Available Category	Name Match Category				
	Complete or Partial Match by Name	No Match by Name	No Last Name Information in Dialer Data	No Name Information in LexisNexis	Total
Name Information is Available within Relevant Time Period	8,616	2,421	101	5,377	16,515
Name Information is Only Available Outside Relevant Time Period	5,154	1,958	54	-	7,166
Total	13,770	4,379	155	5,377	23,681

Notes:

1. Sources: MainCallTable.csv, LN_Output_Dish_II_busreslookupfile.xlsx
2. Relevant Time Period is 5/2010 to 8/2011
3. Name Match Category
 - a. Complete or Partial Match by Name - At least one part of the name information matches between LexisNexis and the Dialer data
 - b. No Match by Name - No name components match between LexisNexis and Dialer data
 - c. No Last Name Information in Dialer Data - Dialer Data is missing Last Name information
 - d. No Name Information in LexisNexis - LexisNexis data did not have name information available
4. Certain records for the dialer data had the entire name contained within the first name field. In these instances, the name was parsed into first and last name components before any matching procedures were performed.

EXHIBIT 13:
SUMMARY OF CALL RECORDS THAT HAVE NAME INFORMATION
LIMITED TO 16,515 PHONE NUMBERS THAT ALSO HAVE INFORMATION
BETWEEN 5/2010 AND 8/2011

Category	Count	%
Numbers with Phone Information between 5/2010 and 8/2011:		
Complete or Partial Match by Name	8,616	52.2%
No Match by Name	2,421	14.7%
No Name Information in Dialer Data	101	0.6%
No Name Information in Lexis / Nexis	5,377	32.6%
Total	16,515	100.0%
Numbers with at Least Partial Name Information in the Five9 Records and in the LexisNexis Data between 5/2010 and 8/2011:		
Complete or Partial Match by Name	8,616	78.1%
No Match by Name	2,421	21.9%
Total	11,037	100.0%

Notes:

1. Sources: MainCallTable.csv, LN_Output_Dish_II_busreslookupfile.xlsx
2. Category
 - a. Complete or Partial Match by Name - At least one part of the name information matches between LexisNexis and the Dialer data
 - b. No Match by Name - No name components match between LexisNexis and Dialer data
 - c. No Last Name Information in Dialer Data - Dialer Data is missing Last Name information.
 - d. No Name Information in LexisNexis - LexisNexis data did not have name information available